

REMARKS

Claims 1, 3-6, 8-9 and 11-29 are currently pending in this application. Claims 2, 7 and 10 have been cancelled without prejudice.

Claims 1, 4, 8, 11, 12, 15 and 22 have also been further amended for clarity. Support for the amendments may be found throughout the specification, see, for example, page 3, first and fourth paragraphs, page 4, fourth paragraph to ninth paragraph, page 6, third paragraph, page 10, fourth paragraph and FIGS. 2, 3A-4B. No new matter has been added.

Favorable reconsideration is respectfully requested.

I. Claim Objections

Claim 3 has been objected to as having the wrong identifier. Applicants have corrected the identifier and have shown the changes that were presented in the previous Amendment.

Applicants respectfully request that the objection to claim 3 be withdrawn.

II. Claim Rejections under 35 U.S.C. §112

A. Claims 8, 9, 13, 14, 15-25, 28 and 29

Claims 8, 9, 13, 14, 15-25, 28 and 29 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claim 8 has been amended to depend from claim 4 that recites an adhesive.

Claims 15 and 22 have been amended to recite "the filter structure at the first region having reduced air permeability relative to a second region of the filter structure free of the filter paper layer." Support for the amendment to claims 15 and 22 may be found, for example, on page 6, third paragraph.

Applicants respectfully request that the rejection of claims 8, 9, 13, 14, 15-25, 28 and 29 under 35 U.S.C. §112, first paragraph, be withdrawn.

B. Claims 8, 9, 13 and 14

Claims 8, 9, 13 and 14 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claim 8 has been amended to depend from claim 4 that recites an adhesive and is consistent with the specification disclosure.

Applicants respectfully request that the rejection of claims 8, 9, 13 and 14 under 35 U.S.C. §112, second paragraph, be withdrawn.

III. Claim Rejections under 35 U.S.C. §102 and §103

A. Claims 4 and 5

Claims 4 and 5 have been rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over, Schultink (EP 0 960 645 A2).

Applicants respectfully traverse the rejection of claims 4 and 5 based on Schultink.

Claims 4 and 5 are directed to a nonwoven layer for a filter for a vacuum cleaner bag that inhibits penetration of the filter material by elongated particles during use of the vacuum cleaner bag while maintaining high filtration efficiency for the overall bag. Claim 4 has been amended to recite that only the at least one region having a smaller surface area than the overall filter comprises an adhesive so that the at least one region has an average pore size smaller than 50 µm. Elongated particles, such as hairs, do not pierce the smaller surface area of the region and the airflow through the filter is maintained.

Schultink is directed to a disposable vacuum filter bag constructed of layers which include a high-air-permeability first layer positioned upstream in the direction of air flow of a second filtration layer. (Abstract.) Schultink at FIG. 8E discloses a spunbond layer. However Schultink does not teach or suggest that only a specific region of the overall filter, the region having a smaller surface area than the filter, comprises an adhesive so that the average pore size is smaller than 50 µm and the fibers are bonded together as recited in claim 4.

Therefore, Applicants respectfully request that the rejection of claims 4 and 5 under 35 U.S.C. §102(b) or in the alternative 35 U.S.C. §103(a) be withdrawn.

B. Claim 1

Claim 1 has been rejected under 35 U.S.C. §103(a) as being obvious over Schultink in view of Chand et al. (Structure and properties of polypropylene fibers during thermal bonding, *Thermochimica Acta* 367-368 (2001) 155-160) as evidenced by Ward (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, Unabridged 1993, and Arnold (U.S. 5,707,468).

Applicants respectfully traverse the rejection of claim 1 based on Schultink in view of Chand.

Claim 1 has been amended to recite that only the at least one region having a smaller surface area than the overall filter is hot calendered so that the at least one region has an average pore size smaller than 50 µm.

Schultink has been discussed above and fails to teach or suggest that only a specific region of the overall filter, the region having a smaller surface area than the filter is hot calendered so that the average pore size is smaller than 50 µm and the fibers are bonded together as recited in claim 1.

As acknowledged by the Examiner on page 13 of the September 2, 2010 Office Action, Schultink does not specifically teach wherein the at least one region is a hot calendered region. According to the Examiner, Chand has been cited for teaching thermal bonding. However, Chand fails to make up the deficiencies of Schultink. Chand also fails to teach or suggest that only a specific region of the overall filter, the region having a smaller surface area than the filter is hot calendered so that the average pore size is smaller than 50 µm and the fibers are bonded together. Together and individually, Schultink and Chand fail to teach or suggest all the limitations of claim 1.

Therefore, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. §103(a) be withdrawn.

C. Claim 3

Claim 3 has been rejected under 35 U.S.C. §103(a) as being obvious over Schultink in view of Chand as evidenced by Ward, Webster's Third New International Dictionary and Arnold as applied to claim 1 above and further in view of Ando et al. (U.S. 5,206,061).

Applicants respectfully traverse the rejection of claim 3 based on Schultink in view of Chand and further in view of Ando.

Schultink and Chand have been discussed above with respect to claim 1 and fail to teach or suggest every element of claim 1.

According to the Examiner, Ando has been cited for teaching spun bonded non-woven fabric and that the mean (i.e. average) fineness of the fibers of the non-woven fabric is preferably 10 denier or less for appreciable dust trapping.

Ando is directed to a dust-proof head gear. (Abstract.) The headgear 1 is made from an electret non-woven fabric 2. (Col. 2, lines 52-54.) However, Ando fails to teach or suggest that only a specific region of the overall filter, the region having a smaller surface area than the filter is hot calendered so that the average pore size is smaller than 50 μm and the fibers are bonded together.

Ando fails to make up the deficiencies of Schultink and Chand. Even assuming that a nonwoven layer having a basis weight between 10 and 100 g/m^2 and an average fineness of 0.6-12 denier is well known in the art is true and accurate, that alone does not provide any motivation to modify Schultink's nonwoven layer as suggested by the Examiner. Although helpful insights need not become "rigid and mandatory formulas" such as the TSM test, the Supreme Court emphasized that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416, 418-19 (2007). The Supreme Court also cautioned that "[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning." *Id.* at 421 (citing *Graham*, 383 U.S. at 36). A nonwoven layer having a basis weight between 10 and 100 g/m^2 and an average fineness of 0.6-12 denier merely being well known in the art would not have prompted a person of ordinary skill in the art to combine the layers of Ando with Schultink and Chand's filters in the way that claim 3 does.

Therefore, Applicants respectfully request that the rejection of claim 3 under 35 U.S.C. §103(a) be withdrawn.

D. Claim 6

Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink as applied to claims 4 and 5 above and further in view of Ohue et al. (U.S. 4,663,222).

Applicants respectfully traverse the rejection of claim 6 as being unpatentable over Schultink in view of Ohue.

Schultink has been discussed above with respect to claim 4 from which claim 6 ultimately depends. Ohue has been cited for disclosing the technique of applying the hotmelt. Ohue is directed to a water-repellant nonwoven fabric made of a melt-blown fiber. (Abstract.) Ohue fails to make up the deficiencies of Schultink. Schultink and Ohue, individually or in combination, fail to teach or suggest all the limitations of claim 6.

Therefore, Applicants respectfully request that the rejection of claim 6 under 35 U.S.C. §103(a) be withdrawn.

E. Claims 1 and 3

Claims 1 and 3 have been rejected under 35 U.S.C. §103(a) as being unpatentable over van Rossen (WO/93/21812) in view of Johnson (U.S. 4,877,526), Ando, Schultink, Chand and Arnold as evidenced by Ward and Webster's.

Applicants respectfully traverse the rejection of claims 1, 3, 8, 9, 13 and 14 as being unpatentable over van Rossen in view of Johnson, Ando, Schultink, Chand and Arnold as evidenced by Ward and Webster's.

Claim 1 has been amended to recite that only the at least one region having a smaller surface area than the overall filter is hot calendered so that the at least one region has an average pore size smaller than 50 µm.

Van Rossen is directed to a dust bag 60 having a protective layer strip 48 through the filter bag. (Abstract.) As acknowledged by the Examiner on pages 18-19 of the September 2, 2010 Office Action, van Rossen does not specifically teach the spunbond nonwoven layer having a basis weight between 10 and 100 g/m² and wherein the spunbond fibers have an average fineness of 0.6-12 denier, with an average pore size smaller than 50 µm. In addition, van Rossen fails to teach or suggest that only the

at least one region having a smaller surface area than the overall filter is hot calendered so that the at least one region has an average pore size smaller than 50 µm.

Johnson has been cited by the Examiner for disclosing a filter bag having an equivalent pore size of about 20 µm. However, Johnson fails to teach or suggest that only the at least one region having a smaller surface area than the overall filter is hot calendered so that the at least one region has an average pore size smaller than 50 µm.

Similarly, Schultink, Ando and Chand have all been discussed above and also fail to teach or suggest that only the at least one region having a smaller surface area than the overall filter is hot calendered so that the at least one region has an average pore size smaller than 50 µm.

In addition, as discussed above, the Supreme Court cautioned that “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *Id.* at 421 (citing *Graham*, 383 U.S. at 36). The Examiner’s reliance on six separate references suggests that the Examiner is relying upon hindsight, having knowledge of the Applicant’s own disclosure. But for this knowledge, the combination of the references would not have occurred to the Examiner. Thus, combining these references is improper.

Therefore, Applicants respectfully request that the rejection of claims 1 and 3 under 35 U.S.C. §103(a) be withdrawn.

F. Claim 11

Claim 11 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink as evidenced by Ward, Webster’s, Arnold and Diehl et al. (U.S. 6,425,978).

Applicants respectfully traverse the rejection of claim 11 as being unpatentable over Schultink.

Claim 11 has been amended to recite treating only at least one region of the nonwoven layer, the treated region having a smaller surface area than the filter, such that the treated region has an average pore size smaller than 50 µm.

Schultink has been discussed above and fails to teach or suggest a method of treating only a region of the non-woven layer that has a smaller surface area than the filter, such that the treated region has an average pore size smaller than 50 µm.

Therefore, Applicants respectfully request that the rejection of claim 11 under 35 U.S.C. §103(a) be withdrawn.

G. Claim 12

Claim 12 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink in view of Arnold and Chand as evidenced by Ward and Webster's.

Applicants respectfully traverse the rejection of claim 12 as being unpatentable over Schultink in view of Arnold and Chand.

Claim 12 has been amended to recite treating only at least one region of the nonwoven layer, the treated region having a smaller surface area than the filter, such that the treated region has an average pore size smaller than 50 µm.

Schultink, Arnold, Ward and Webster's have been discussed above and fail to teach or suggest all the elements of claim 12.

Therefore, Applicants respectfully request that the rejection of claim 12 under 35 U.S.C. §103(a) be withdrawn.

H. Claim 26

Claim 26 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink as evidenced by Ward, Webster's and Arnold as applied to claims 4 and 5 and further in view of Lutz et al. (*Polypropylene: An A-Z Reference*).

Applicants respectfully traverse the rejection of claim 26 as being unpatentable over Schultink in view of Lutz.

Schultink has been discussed above with respect to claim 4 from which claim 26 depends and fails to teach or suggest all the limitations of claim 4. According to the Examiner, Lutz teaches at page 301 and 303 that pulverized polymer is an alternative to hotmelt for adhesion of fibers (nonwoven material). However, Lutz fails to make up the deficiencies of Schultink. Schultink and Lutz, individually or in combination, fail to teach or suggest all the limitations of claim 26.

Therefore, Applicants respectfully request that the rejection of claim 26 under 35 U.S.C. §103(a) be withdrawn.

I. Claim 27

Claim 27 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink as evidenced by Ward, Webster's, Arnold and Diehl as applied to claim 11 and further in view of Lutz.

Applicants respectfully traverse the rejection of claim 27 as being unpatentable over Schultink in view of Lutz.

Schultink has been discussed above with respect to claim 11 from which claim 27 depends. Lutz has been discussed above with regard to claim 26. Lutz fails to make up the deficiencies of Schultink. Schultink and Lutz, individually or in combination, fail to teach or suggest all the limitations of claim 27.

Therefore, Applicants respectfully request that the rejection of claim 27 under 35 U.S.C. §103(a) be withdrawn.

IV. Summary

Applicants respectfully assert that the claims are in condition for allowance. Allowance of the claims is earnestly solicited. Should the Examiner wish to discuss any of the above submissions in more detail, the Examiner is asked to please call the undersigned at the telephone number listed below.

Respectfully submitted,

Dated: December 2, 2010


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